BACKGROUND OF THE INVENTION--FIELD OF INVENTION

The present invention relates to the fields of ecology, and more specifically to the fields of erosion control, and landscaping. In general, the present invention provides a product and a method for promoting the growth of seed.

Background of the Invention: Replace with following

BACKGROUND OF THE INVENTION--PRIOR ART

Erosion is the process by which the surface of the land is worn away by the action of water, wind, ice, gravity, and the action of living organisms. Natural erosion is relatively slow and is a vital factor in maintaining environmental balance. Accelerated erosion occurs at increased rate usually because of removal of natural vegetation; construction and agriculture practices are the main causes.

A soil is a product of its environment and its erodibility is a result of soil characteristic to infiltration and resistance to detachment and transport by rainfall and runoff. Organic matter such humus and manure improves soil structure, increases water holding capacity and may increase the infiltration rate.

Dense, vigorous vegetation is the most effective shield that protects soil surface from the impact of falling rain, reduces, and disperses runoff flow, promotes infiltration and deposition of sediments.

Besides preventing erosion, healthy vegetative cover provides a stable surface that absorbs rainfall, cuts down on heat reflectance reducing greenhouse effect, control dust pollution, restricts weed growth and complements the landscape

with a pleasant environment which contributes greatly to property value of construction sites.

Seeding consist of planting rapid growing annual grasses, small plant grains or legumes to provide initial temporary cover or permanently cover for erosion control. The disadvantage of seeding is that requires proper seedbed preparation. Another disadvantage of seeding is that the uniform distribution on the soil surface is difficult to achieve, and that the exceeding rates cause over dense population subject to drought and competitive interference.

Sodding is the permanently stabilization of areas by laying a continuous cover of grass sod. One disadvantage of sodding is that the site also requires preparation and that the initial cost of installation is higher than to plant seed. Another disadvantage of sodding is that the soil preparation should be completed before sod is delivered. This is particularly disadvantageous if, for any reason sod is left on-site rolled or stacked, the result of which can be that heat and moist can build up inside, causing severe damage and loss of costly plant material.

Mulching is the application of a protective blanket of straw or other plant residue, gravel, or synthetic material to the soil surface, to protect the soil surface of raindrop impact and overland flow. The choice of materials for mulching should be based on soil conditions, season, type of vegetation, and size of the area to protect. The disadvantage of mulching is that the material expands upon watering breaking the bond provided within the fibrous material and that the portions of the mulch, seed and fertilizer are washed away from the mat area.

Chemical mulches and soil binders are a wide range of synthetic compounds available to stabilize soil surface. These include emulsions or dispersions of vinyl, asphalt or rubber mixed with water. They may be used alone or

may be used to tack organic mulches. The disadvantage of chemical mulches is that the moisture is not retained and that the soil is not insulated. Another disadvantage of chemical mulches is that the environment is always under potential risk of contamination.

Mats promote seedling growth in the same way as organic mulches. They are used in establishing grass in channels and waterways. The disadvantage of mats is that the continuous contact between surfaces is difficult to obtain. This is particularly disadvantageous if, for operational reasons, the contact surface is interrupted, the result of which can be that erosion will occur underneath.

Engineered turf systems are biodegradable mats containing seed and fertilizer. This mats have to be rolled on soil surface and some times need sod staples to secure the mat to the soil, the soil surface must be prepared as it would be for traditional seeding. This includes eradicating and removing existing vegetation including existing grass and raking the soil to loosen the top 3 inches of soil. The disadvantage of engineered turf is that the soil must have a smooth surface free of any obstacle before installing the mats and that the soil surface have to be plow.

Known prior art products and methods of growing vegetation include:

U.S. Patent Documents

4,318,248 Mar., 1982Muldner.

4,417,828 Nov., 1983Winter.

4,584,790 Apr., 1986Gaughen.

5,073,401 Dec., 1991Mohr.

5,358,356 Oct., 1994Romanek, et al.

5,235,781 Aug., 1993Holley.

5,421,123 Jun., 1995Sakate et al.

5,735,982 Apr., 1998Prunty et al.

5,860,245 Jan., 1999Welch.

5,934,011 Aug., 1999Ishioka, et al.

6,351,911 Mar., 2002Behrens.

6,925,754 Aug., 2005Tearoe.

6,951,438 Oct., 2005Carpenter.

Foreign Patent Documents

DE 4022413 Jan., 1992 Luecke et al.

Other References

State of North Carolina; Erosion and Sediment Control, Planning and Design manual.

The disadvantage of some of the prior art products is that the essential native vegetation have to be completely removed before installing some of the products, and that the soil surface must be prepared as it would be for conventional seeding. Another disadvantage of the prior art products is that the soil surface must be prepared before installing mats. This is particularly disadvantageous if, for operational reasons, the time of installation is extended, the result of which can be that the hand labor cost is increased and that the additional materials are required, leading to high total cost.

While these devices and methods fulfill their respective, particular objectives and requirements, the aforementioned patents do not disclose, nor anticipate, nor suggest, nor render obvious, nor even imply, either alone or in any combination a support and method like the present invention, which belongs in whole to my ownership and comprises a prepared chip for promoting the growth of seed, made in the form of: flakes, strips, straws, and grains.

Brief Summary of the Invention: Replace with following

BRIEF SUMMARY OF THE INVENTION

The present invention relates to a novel, useful, and versatile product and method for promoting the growth of seed. Accordingly, the chips of the present invention are preferably used to assist the establishment of a vegetative layer on grounds and synthetic surfaces, with the purpose of: to prevent and to control erosion processes, to generate lawns and gardens to be used in landscaping.

A principal object of the present invention is to provide chips for promoting the growth of seed. The chips of the present invention play a significant role in inducing a variety of natural processes, particularly biological processes affecting responses in a variety of seed placed therein, which under favorable environmental conditions will generate the establishment of a vegetative layer on grounds and synthetic surfaces.

The present invention contemplates chips for promoting the growth of seed comprising an organic sheeting support, mixed with a variety of seed, which are adhered to the organic sheeting support by an organic adhesive mixed with nutrients. In a preferred embodiment, the chips of the present invention are arranged, shaped, and cut in the form of: flakes, strips, straws, and grains.

An organic material as used herein refers to: a materials having relationship, connection, and origin from living organisms; materials derived from plants; materials which contain carbon compounds, as derived from coal, petroleum, asphalt, limestone, carbonates, and other carbon compounds.

The organic sheeting support as used herein refers to a stratum formed by the physical interaction between layers of organic materials, especially fibers interleaved and selected from the group of: cellulosic material, paper, soft paper, recycled paper, coir, fine-grained straws, fine-grained grass leaves, bagasse, wood chips, bark chips, leaves chips, peat moss, biodegradable fibers, clean biodegradable recycled fibers, new biodegradable synthetic fibers, and others the same kind; and combinations thereof.

The organic adhesive as used herein refers to: an adhesive material formed by the physical union and the chemical reaction of a variety of organic materials, especially ingredients selected from the group of: natural glue, corn syrup, rice syrup, latex, and others especially of the same kind; and combinations thereof.

The natural glue is a biodegradable gelatinous substance, which absorbs water to form a viscous solution, dry by exhaustion of the water present in the solution, exhibit strong adhesive properties by drying, the natural glue in dry state swell as response to water addition, retain water when swelled and dissolve slowly by watering and drying actions.

Some of the physical, chemical and biological properties of the organic adhesive are attributed to the nature and to the disposition of the elements comprising its formulation. In some preferred embodiments, the organic adhesive is arranged to perform at least one of the following actions: to adhere elements conforming the organic sheeting support, to adhere sequences of seed, to adhere sequences of organic sheeting support to sequences of seed; to fill some of the interstices inside the composition, to provide nutrients to aid the growth of the seed placed therein, and in some circumstances to aid the development of next generations of vegetative cover.

Some of the physical properties of the chips are attributed to the nature and to the disposition of the elements comprising the organic sheeting support. The organic sheeting support is arranged in different configurations, in order to provide the physical strength to the chips, in such necessary and sufficient manner, to allow the chips to perform, at least, the following processes: manufacture, packing, storage, transport, installation, rainfall impact absorption, water absorption, water retention, water percolation, water runoff, plant nutrition, reduce evaporation, and incorporation to the ecosystem, particularly by biodegradation.

Some of the biological properties of the micro environment around the seed are influenced by the synergistic interaction of: the intrinsic biological properties of the elements of the organic sheeting support, the intrinsic biological properties of the elements of the organic adhesive, and the intrinsic biological properties of elements added to the chips. In preferred embodiments, the chips assist a wide variety of plant growth responses, including, but not limited to: breaking of seed dormancy, stimulation of seed germination, allowing plant rooting inside and through the composition, stimulation of cell proliferation, stimulation of stem growth inside and through the chips, stimulation of plant proliferation, aid to plant persistency, assist the establishment of the vegetative cover, and aid the biodegradation of the organic sheeting support for its incorporation into the soil ecosystem.

Once the variety of seed are placed and adhered into the organic sheeting support, the environment inside the chips, and specifically, the environment around the seed have to exhibit the minimum favorable conditions, in order to continuously keep the state of dormancy of the seed, until the chips are fully watered, condition which breaks the state of dormancy of the seed, this part of the process is usually performed after the chips are installed on the ground.

It is also an object of the present invention to paint and to print the exterior surfaces of the chips, and to shape the form of the chips for promoting the growth of seed, in such necessary and sufficient manner, to allow the chips, object of the present invention, to be used as a media for publicity, with the purpose to involve commercial and institutional organizations within activities conducing to the preservation and recuperation of the environment.

It is an additional object of the invention to provide a method for promoting the growth of seed on grounds and synthetic surfaces, which comprises the steps of: applying onto a ground or synthetic surface an effective amount of the chips, the application could be made by hand or mechanically assisted by blowers machines; applying an effective amount of water simulating sprinkler or soft rain effect, as soon as the chips are covering the ground; watering the chips at least once daily until seedlings are germinated; keeping the moisture of the chips, which is essential for the seed germination; applying enough water to ensure that the chips remain thoroughly wet during germination and preventing traffic on newly planted areas until the vegetative cover is established. The vegetative cover established by the chips, will perform similarly like any natural vegetative cover.

The general innovative advantage of the invention resides in its form, size, design, composition, purpose, and versatility, which will have a positive and outstanding effect into the recovering, preservation, conservation, and improvement of the environment.

Particular advantages of the present invention are disclosed a continuation: this invention does not require seedbed preparation, because the seed is previously placed therein; another advantage is that the distribution of the chips on the ground could be uniform, or following predefined patterns on the ground, using different kinds of chips to generate different kinds of vegetative cover for engineered

applications, specially, but not limited for erosion control; compared with sodding, this invention is not affected by setting on-site, because a bulk package protects the chips before its application; compared with mulching, the chips in this invention are not washed away by runoff, because the organic sheeting support undertakes the dragging forces and the organic adhesive fix the chips onto the ground; compared with chemical mulches, this invention retains moisture, allows infiltration, and represents no risk of contamination; compared with mats, this invention obtains a continuous contact with the ground surface, specially after watering, and there is no need to roll; compared with engineered turf systems, the advantage of the present invention is its versatility to be applied under a variety of circumstances, and obstacles present on the surface are not a relevant issue for its good performance.

Brief description of the Drawings: Replace with following

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Embodiments of the present invention will be described with respect to the figures, in which like reference numerals denote like elements, and in which:

Fig 1 is a diagrammatic view, shows a fragment of the front of one chip made in one layer.

Fig 2 is a diagrammatic view, shows a fragment of the front of one chip made in two layers.

Fig 3 is a diagrammatic top view, shows the chips manufactured in the forms of flakes.

Fig 4 is a diagrammatic top view, shows the chips manufactured in the forms of strips.

Fig 5 is a diagrammatic three-dimensional view, shows fragments of the chips manufactured in the forms of straws.

Fig 6 is a diagrammatic top view, shows the chips manufactured in the forms of grains.

Fig 7 is a diagrammatic top view, illustrates the use of the exterior surfaces of the chips as a media for publicity.

Fig 8 is a diagrammatic top view, illustrates the use of the exterior shape of the chips as a media for publicity.

Include following new

DETAILED DESCRIPTION OF THE INVENTION

In the description that follows, the terms are commonly used and extensively applied by those skilled in the art of ecology, erosion control and landscaping.

A preferred embodiment of the chips for promoting the growth of seed, of the present invention is diagrammatically illustrated in Fig 1 (fragmentary front view). The chips have one layer of the organic sheeting support 20 interspersed with the seed 22, and bonded together at least partially by the organic adhesive 24. The chips may be easily manufactured and efficiently marketed in the forms of flakes 30, strips 32, straws 34, and grains 36.

Another preferred embodiment of the chips for promoting the growth of seed, of the present invention is diagrammatically illustrated in Fig 2 (fragmentary front view). A layer of the seed 22 enclosed between two layers of the organic sheeting support 20 are bonded together at least partially by the organic adhesive 24. The chips may be easily manufactured and efficiently marketed in the forms of flakes 30, strips 32, straws 34, and grains 36.

Fig 3 is a diagrammatic top view of the chips for promoting the growth of seed, illustrates the chips manufactured in the forms of flakes 30, shows the organic sheeting support 20 and the seed 22 bonded together at least partially by the organic adhesive 24.

Fig 4 is a diagrammatic top view of the chips for promoting the growth of seed, illustrates the chips manufactured in the forms of strips 32, shows the organic sheeting support 20 and the seed 22 bonded together at least partially by the organic adhesive 24.

Fig 5 is a diagrammatic three-dimensional view, illustrates fragments of the chips manufactured in the forms of straws 34, shows the organic sheeting support 20 and the seed 22 bonded together at least partially by the organic adhesive 24.

Fig 6 is a diagrammatic top view, illustrates the chips manufactured in the forms of grains 36, shows the organic sheeting support 20 and the seed 22 bonded together at least partially by the organic adhesive 24.

Fig 7 is a diagrammatic top view, illustrates the use of the exterior surfaces of the chips 40 as a media for publicity, shows different drawings printed on the exterior surfaces of the chips

Fig 8 is a diagrammatic top view, illustrates the use of the exterior shape of the chips 42 as a media for publicity, shows the chips shaped in different forms and printed with drawings.

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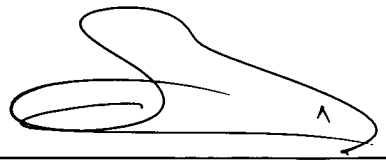

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